

DEQ NORTHWEST REGION
COMPLIANCE EVALUATION INSPECTION

FORMER SOLOPOWER INC
6308 N. MARINE DRIVE
PORTLAND, OR 97203
EPA ID# ORQ000030450



State of Oregon
Department of
Environmental
Quality

Inspection Dates: September 26 and November 20, 2018, and
January 17, 2019
DEQ Inspectors: Jay Collins and Zeb Bates, Hazardous Waste Inspectors
Other Inspectors: Nicholas Cisney, Water Permit Writer, City of Portland

Facility Representatives:

Ex. 6 PP / Ex. 7(C)

Prepared by (dated signature)

 3/5/19

GENERAL INFORMATION

Purpose of Inspection

The Department of Environmental Quality (DEQ) conducted an unannounced inspection of the former SoloPower Inc. facility to determine its compliance with the Federal Resource Conservation and Recovery Act (RCRA), the Oregon Revised Statutes (ORS) and the Oregon Administrative Rules (OAR) standards for managing hazardous waste. The US Environmental Protection Agency authorized DEQ to regulate hazardous waste management in Oregon. The purpose of these laws and rules is to prevent releases of hazardous waste onto the land, into the air, or to surface or groundwater, and to ensure proper handling and cleanup if releases occur.

The hazardous waste and universal waste Code of Federal Regulations (CFR) referenced in this letter, as adopted in 340-100-0002, are through June 30, 2015, as modified by Oregon Administrative Rules (OAR) 340 Divisions 100 through 113. References to the 40 CFR Part 279 federal used oil regulations are as enacted through July 30, 2003, as modified by OAR 340 Division 111.

Facility Background Information and Compliance History

SoloPower Inc. was a start-up using grant money, federal dollars and other sources including Multnomah County, to get into the solar power panel industry. The product designed for manufacture was a thin-film, flexible photo-voltaic solar panel. They plated copper, indium, gallium, and selenium onto a flexible film backing.

The facility reported to DEQ as a large quantity generator (LQG) of hazardous waste beginning in 2011 through 2017. For 2017, the facility reported two hazardous waste streams: solids and liquids. SoloPower Systems Inc. reported 1800 pounds of the solids waste stream, coding it as D006/D007/D010. They reported 90,117 pounds of the liquids waste stream, coding it as 006/D007/D010D002/D004/D006/D007/D010 and F006.

LIT Industrial, the property owner, acquired the physical facility from REEF in 2005, first obtaining a level II site assessment. SoloPower Systems Inc. leased the property later. Ex. 6 PP / Ex. 7(C) of Tetra Tech conducted environmental audits of facility operations. SoloPower Systems Inc. declared bankruptcy in 2018, abandoning the facility, including hazardous materials in tanks and containers, and in manufacturing process units. LIT Industrial procured environmental contractors for site assessment work included Forensic Analytical. LIT Industrial, assumed responsibility to stabilize the facility, clean process lines, operations rooms, laboratory, and characterize waste streams. LIT Industrial would further properly manage all the identified hazardous wastes SoloPower Systems Inc. abandoned.

Previous Inspection Findings

DEQ Hazardous Waste Inspector Laurey Cook conducted an inspection of SoloPower Systems Inc. from December 8-11, 2015. DEQ issued SoloPower Systems Inc. a pre-enforcement notice on February 16, 2016, after documenting violations of the following regulations:

- Exceeding the 90-day storage limit for LQG of hazardous waste for over 30-days;
- Failure to label container of hazardous waste in storage with the words “hazardous waste;”
- Failure to store container of hazardous waste closed;
- Failure to maintain adequate aisle space for container of hazardous waste; and
- Failure to comply with satellite accumulation requirements.

On July 27, 2017, DEQ issued an Order assessing \$13,023 in civil penalties. SoloPower Systems Inc. paid this penalty and submitted the documentation necessary to demonstrate return to compliance for the violations cited.

Earlier, on June 20, 2014, SoloPower Systems Inc. had self-reported a violation to DEQ for exceedance of the LQG 90-day storage limit for hazardous waste.

PERMITS

The facility operated under a sanitary sewer pre-treatment permit overseen by Nick Cisney, Permit Manager, City of Portland Bureau of Environmental Services (BES). The City revoked Solo Power’s sanitary sewer pretreatment permit when SoloPower terminated control of operations and abandoned the facility in 2018.

FACILITY INSPECTION

On-site on September 26, 2018, I met with the facility representatives and with Nick Cisney of BES. We discussed the situation in terms of the waste on site, the hazards present, timing of the project for both evaluation, characterization, removal, and disposal. Difficulties identified included legal access given the property rights issues with the County, holding a \$1,500,000 tax lien, and other potential lien holders at court. We discussed when they took operations over from SoloPower Systems Inc. and began formal control over the facility, and the timing of SoloPower Inc’s abandonment of the wastes in process equipment and in containers in the plant. Based on that discussion, I felt comfortable with and notified facility representatives that DEQ would generously consider September 4, 2018 as the accumulation start date for the wastes remaining on site. Given the quantity of likely hazardous waste, until completion of this removal action LIT Industrial would be operating under the LQG requirements. LIT Industrial obtained the facility EPA ID number and provided its own contacts.

LIT Industrial were in process of getting three bids from hazardous waste removal contractors. Waste streams included acids, bases, RCRA metals, mixed wastewaters, lab reagents, and solvents.

Facility Walk-Through

The 250,000 sq-ft facility is portioned off into different operational areas. At center of facility on the Northeast facing N. Marine Drive was the former reception area, with offices, cubicles, and conference rooms, a lunch room, a wash room and bathrooms.

Lockers were available when you entered the open production floor and warehouse. (Please see the attached photograph logs for additional documentation.)

The Main Plant Floor

Entering the plant floor through the office area, to the right (NE) were dry goods stores, pieces of unused or former process equipment, and what was the shipping department including a loading dock. In an examination of this area, I identified several locations with stacks of what appeared to be complete thin-film photo-voltaic units.

At center of the facility were several processing stations for product finishing and/or testing. These stations held complicated arrays of electronics. These stations did not appear to contain hazardous wastes.

At center-left (SW) was a 100-foot-long drying line that extended from NE to SW. This was a dry-process curing step for plated film. No equipment was currently in use. SoloPower Systems Inc. had abandoned it in place. At some point it had been de-energized.

Exterior to the Building

In the lot, in a fenced enclosure next to the SE corner of the facility as it faces N. Marine Drive, stood a locked walk-in air processing unit. Nick Cisney from BES followed up on this unit after the inspection. He obtained photographs documenting that no chemicals were present. This unit is expected to sell. After the buyer removes the unit, LIT Industrial plans to close a chiller-water discharge pipe once thought to discharge to the sanitary sewer.

The "Cadmium Room"

Two rooms in the facility were closed for entry at the time of the inspection. These rooms were thought to be contaminated with metals fines. This included the "Cadmium Room."

Tetra Tech, the project environmental consultant, and Clean Harbors Environmental Services, the contractor hired for the removal action, later confirmed that these rooms had elevated levels of cadmium dust requiring use of personal protective equipment (PPE) consisting of Tyvek suits and full-face respirators with cartridges designed for metal fines and other contaminants. The door was labeled "CAUTION Vapor Respirator Required in this Area." The door was also marked "CDS Buffer Layer." Above the door we saw a fire department hazard diamond showing a 3 for health hazard. (See the photograph of the door to this room.) A look through the window did not show anything presenting an imminent hazard or immediate danger outside of entry door access.

The Wastewater Treatment Room

Activity in the Wastewater Treatment Room was at a halt. Six large polyethylene tanks are located in this space containing uncharacterized wastewaters. Acid storage cabinets awaited assessment and content characterization, as did the contents of flammable cabinets, and banks of stand-up resin filter treatment cylinders.

Chemicals were left in place on the benches and the floor of a laboratory curtained off from processing areas. We observed rolling carts with small bottles of a variety of chemical products left in place when the facility was abandoned by the former operator. We also observed chemicals positioned under inactive fume hoods.

Open containers of chemicals were left with pumps attached, the chemicals that leaked from these units hardened dry out of solution. 275-gallon totes and 55-gallon drums of wastes and products were positioned in corners and against walls. I also observed rows of these large totes down the center of the room. I observed warning signs that identified concentrated ammonia hazards next to two smaller, blue, stained drums. I also observed drums and totes of caustic soda on the same floor with drums of acid; these materials are chemically incompatible. Acids included sulfuric, nitric, and hydrochloric.

I observed a 55-gallon blue poly drum labeled "Hazardous Waste" and "Cadmium Filters." SoloPower Systems Inc. had cut part of the top of this drum to accommodate some of the longer spent filters. I asked the facility representatives to address this issue. The open unit behind this drum was labeled similarly. It appeared to be a spent filter drip-dry rack.

Several of the large polyethylene collection tanks in the wastewater treatment area bore Fire Department hazard diamonds. The blue health diamond read "3" and these tanks were labeled "Danger! Contains Cadmium."

The Thin-Film Plating Shop

I entered the Plating Shop through a roll-up door. The first area inspected was chemical storage. Barrels of presumed product were stored in drums and totes behind a partial wall in the large plating room. We saw over 12 275-gallon labeled totes. Labels included sulfuric acid, "Bases," and a plating mixture of metals in potassium tartrate solution.

I observed a posting listing the hazardous wastes generated by the facility near a former satellite accumulation area near the plating line.

The 100-ft-long copper, indium, gallium enclosed plating line was still in place. Plating chemistry remained inside the automated plating line. I observed various filters situated under this raised line apparently plumbed to the process chemistry vats. White persipitate had formed around some filters and chemical feed units. These hazards had not yet been evaluated by the property owner after the leaseholder left.

Product Storage and Maintenance Cage

Back on the main plant floor, we looked through a locked metal cyclone fence partitioning off adjacent product storage and maintenance cages. I observed drummed products including various chemicals and oils, cleaning supplies, cardboard rounds traditionally for dry goods storage, and drums labeled "non-hazardous wastes," some of which were left stored open.

RECORD KEEPING AND REPORTING

Spill Contingency Plan

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Former SoloPower Systems Inc-- ORQ000030450

DEQ Hazardous Waste Inspection -- September 26 and November 20, 2018, and January 17, 2019

Conditions at the time of the inspection supported the belief that the facility had closed abruptly. As the project moved forward, the facility operated under a health and safety plan composed and approved jointly with their environmental consultant, Tetra Tech, and their environmental contractor, Clean Harbors Environmental Services (CHES).

Training Records

All personnel with hazardous waste job responsibilities at the facility are trained in and have significant recent and longterm work experience with chemical hazards, hazard abatement, and removal actions. Some of the staff interviewed have a general awareness and training in the hazardous waste regulations.

During the inspection in 2015, DEQ inspectors observed incorrectly labeled and dated containers of hazardous waste, and a lack of aisle space in what had become the 90-day storage area. (See below for follow-up inspection findings.) I interviewed staff on site and confirmed that while they had 40-hr HAZMAT training and DOT HAZMAT transportation training, that lacked training specific to the hazardous waste responsibilities they had been charged with.

Waste Manifests/LDRs/Waste Analysis/MSDS

The property owner had recently taken over the facility and the County had issued a stop work order until a settlement could be reached on the sale and subsequent receipts for assets stored at the facility. The facility had incomplete sets of manifests and waste determination records at the time of the followup inspection. It was difficult for DEQ to obtain copies of manifests, LDR forms and waste determination records, as Clean Harbors was allowed to manage this documentation off site. The regulations require the facility to maintain copies of this documentation on-site and available for review.

I conducted a final review of the all hazardous waste manifests, LDR forms, and HAZCAT and laboratory analytical reports. The waste coding appears accurate. This characterization work is also consistent with the codes SoloPower Systems Inc. reported on their annual LQG reports. In the end, LIT Industrial through their environmental consultant and environmental contractor characterized and properly shipped over 100,000 pounds of a variety of hazardous waste offsite for proper disposal at permitted facilities.

Weekly Container Inspections

DEQ asked and the facility agreed to begin conducting weekly container inspection and supply copies of these logs to DEQ to verify active management of the waste abandoned on site.

EXIT INTERVIEW

DEQ thanked representatives of the owner of the facility for taking on this important project. I stated that I would remain in contact to help ensure proper waste characterization, management, transport, and disposal. I emphasized that the facility during the time of the removal action would remain a LQG of hazardous waste. I proposed and DEQ management later confirmed that we would allow a generous accumulation start date of September 4, 2018, for this waste. I communicated that the 90-day clock for storage would then expire on December 4, 2018.

I requested copies of all hazardous waste manifests, LDR forms, as soon as waste was shipped, along with all documentation used in waste determination. I also emphasized the need for a presence to ensure that the waste

was properly stored and hazardous conditions would not worsen as result of continued storage. SoloPower Systems Inc, the former tenant, had abandoned on site. I stated that DEQ planned to review SoloPower System Inc. actions and take appropriate response.

Mr. Cisney from the City confirmed that no waste except bathroom and kitchen waste would be discharged to the sewer. He requested followup as the project moved forward.

FOLLOW-UP INSPECTION ON NOVEMBER 20, 2018

DEQ re-inspected the facility on November 20, 2018. Zeb Bates and I conducted the inspection with [Ex. 6 PP / Ex. 7(C)] [Ex. 6 PP / Ex. 7(C)] from EPA. We met with [Ex. 6 PP / Ex. 7(C)] of Tetra Tech.

Environmental contractor and consultant personnel had experienced problems with access of the wastewater treatment room due to the detected presence of hydrogen sulfide fumes (H₂S). CHES had ceased operations until the room was cleared for work with the PPE available to the project. CHES determined that the hydrogen sulfide had evolved in wastewater treatment tanks due to reduction reactions likely from a lack of available oxygen in these bestilled waste tanks. Access was also still prohibited without Level A PPE in the Cadmium Room. The air venting systems for the Cadmium Room was kept turned off to prevent releases in part due to the mess around the floor of the air scrubber.

We again stated our appreciation for the commitment from LIT Industrial and the efforts of its consultant Tetra Tech and its contractor. We did not press RCRA container and tank management requirements for the areas being worked, or the waste in the machines and tanks, understanding that personnel were doing the best they could to containerize wastes and see the waste through the characterization stage. I chose to accept the site-specific health and safety plan developed by CHES and Tetra Teach in lieu of the standard large quantity generator contingency plan given the expected brevity of this project.

We did note that waste removed from process units and product storage areas and staged under contractor control required management in accordance with hazardous waste rules. We discussed labeling hazardous wastes with the words "hazardous waste" and marking containers with accumulation start dates. I recommended that the facility use the labeling convention "Pending Hazardous Waste Determination" for containers with contents under review, marking these containers with accumulation start dates. This is functional and if the waste proves to be hazardous waste, the labels bear the required words "Hazardous Waste" and the accumulation start date and so have been stored in compliance with rule.

I requested weekly inspection logs be submitted weekly for the 90-day storage area to ensure that these requirements were being addressed. I also reviewed and obtained copies of some manifests and LDRs. I also requested a copy of the HASP which was promptly submitted by email with a portion of the requested manifest and LDR forms.

FOLLOW-UP INSPECTION ON JANUARY 17, 2019

DEQ conducted a final site inspection on January 17, 2019. During this inspection, Zeb Bates and I observed concerns with the management of several hazardous waste containers. In the area were the facility managed wastes containerized out of the materials left by its former tenant, the 90-day RCRA storage area, we observed a polyethylene tote lacking a hazardous waste label. We also observed a container lacking an accumulation start date (See photographs documenting this inspection). I asked about training. It did not appear that staff had sufficient hazardous waste training specific to LQG storage requirements.

DEQ had issued LIT Industrial a 30-day extension of the LQG 90-day storage limit requirement based on problems with access and delays in contractor hire given a finding of hazardous conditions in two of the processing rooms. This one-time extension, the maximum allowable in rule, ended on January 4, 2019. The DEQ Hazardous Waste inspection on January 17, 2019, verified that hazardous waste from facility closure remained onsite at that time in excess of the extended deadline DEQ was able within our authority to provide. Again, the required set of complete manifests, LDR forms, and waste determination documents were not maintained for review on site. LIT Industrial had announced an auction of process equipment and dry goods on January 21-23, 2019.

POST INSPECTIONS ISSUES

DEQ has remained in contact with Nick Cisney, BES Sanitary Sewer Permit Manager. He obtained photographs of the inside of the air processing steel out building. No chemicals were stored in this unit. He verified that the pipe leaving this unit only generated chiller water. He negotiated closure of the pipe through the asphalt lot once the unit had been sold.

Ex. 6 PP / Ex. 7(C) with Tetra Tech, supplied hazardous waste manifests and LDR forms for the first two shipments by email. On January 6, 2019, **Ex. 6 PP / Ex. 7(C)** emailed the previous three hazardous waste storage area weekly inspection logs. After the last DEQ inspection, **Ex. 6 PP / Ex. 7(C)** followed up with me, emailing all of the outstanding hazardous waste manifests, LDR forms, and waste determination records. **Ex. 6 PP / Ex. 7(C)** also followed up with copies of all waste shipment records through the date of sale.

CONCLUSIONS & RECOMMENDATIONS IN REGARDS TO SOLOPOWER SYSTEMS INC.

Ex. 5 Deliberative Process (DP)

Significant Non-Complier Evaluation and Determination

Consider whether the Respondent (former tenant SoloPower) is a Significant Non-Complier (SNC) (see Appendix S of DEQ's Enforcement Guidance):

- Did the violation(s) cause actual exposure or a substantial likelihood of exposure to hazardous waste or hazardous waste constituents to humans or the environment? **Ex. 5 Deliberative Process (DP)**
- Did the Respondent violate the law through **flagrant or willful** action? **Ex. 5 Deliberative Process (DP)**
- Is this a chronic or recalcitrant violator? **Ex. 5 Deliberative Process (DP)**
- Do the violation(s) deviate substantially from the terms of a permit, order, agreement or hazardous waste statutory or regulatory requirement? **Ex. 5 Deliberative Process (DP)**

DEQ staff may use any **one** of these criteria to warrant designation as a SNC at any time during the enforcement process. DEQ may evaluate persons on a multi-media basis for SNC designation; however, a person may be found to be a SNC based solely on previous RCRA violations or behavior.

Is SoloPower Systems a SNC? **Ex. 5 Deliberative Process (DP)**

CONCLUSIONS & RECOMMENDATIONS IN REGARDS TO LIT INDUSTRIAL

Ex. 5 Deliberative Process (DP)

The property owner took over formal operations and control of waste management at this facility on or before September 4, 2018. The large quantity generator waste accumulation storage limit required the hazardous waste to be properly characterized and disposed by December 4, 2018. DEQ granted a one-time 30-day extension for waste storage. This extension ended on January 4, 2019. Hazardous wastes remained on site, as documented by DEQ's inspection on January 17, 2019.

Ex. 5 Deliberative Process (DP)

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Appendix: ATTACHMENTS

DEQ Inspection Photograph Logs

Please see the file for the following attachments:

- Hazwaste.net notification and annual reporting records
- Responses: Emails, letters, correspondence, telephone conversation memos, and documentation of corrective actions
- Past Inspection Findings at this facility